

WHAT IS CLAIMED IS:

1. A motorcycle comprising:

(a.) front and rear wheels;

(b.) a frame supported on and connected to the front and rear wheels;

(c.) an engine mounted to the frame and disposed between the front and rear wheels;

(d.) a seat mounted to the frame;

(e.) a radiator mounted to the frame and positioned between the engine and the rear wheel; and

(f.) a bottom air duct for guiding cooling air to the radiator, said bottom air duct extending under the engine and having an inlet located forwardly of at least a majority of the engine and an outlet positioned to permit exiting air to communicate with the radiator.

2. The motorcycle of claim 1, wherein the frame comprises:

a steering head;

a pair of spaced-apart down pipes secured to the steering head and extending downwardly and rearwardly therefrom; and

a pair of bottom pipes joined at bends to bottom portions of the down pipes and extending rearwardly therefrom.

3. The motorcycle of claim 2, wherein the bottom air duct is disposed between the bottom pipes of the frame.

4. The motorcycle of claim 3, wherein the inlet of the bottom air duct is disposed at least proximate to the bends.

5. The motorcycle of claim 2, further comprising a pair of top air ducts for guiding cooling air to the radiator, said top air ducts extending over the engine and having inlets

disposed on opposing sides of the steering head.

6. The motorcycle of claim 5, further comprising a middle air duct for guiding cooling air to the radiator, said middle air duct extending over the engine and having an inlet located below the steering head and in lateral alignment with a space between the down pipes.

7. A motorcycle comprising:

(a.) front and rear wheels;

(b.) a frame supported on and connected to the front and rear wheels, said frame comprising:

a steering head;

a pair of down pipes secured to the steering head and extending downwardly and rearwardly therefrom, said down pipes being spaced apart to define a space therebetween; and

a pair of bottom pipes joined at bends to bottom portions of the down pipes and extending rearwardly therefrom;

(c.) an engine mounted to the frame and disposed between the front and rear wheels;

(d.) a seat mounted to the frame;

(e.) a radiator mounted to the frame and positioned between the engine and the rear wheel and disposed such that an uppermost portion of the radiator is disposed at a lower level than an uppermost portion of the rear wheel; and

(f.) a middle air duct for guiding cooling air to the radiator, said middle air duct extending over the engine and having an inlet located below the steering head and in lateral alignment with the space between the down pipes and an outlet positioned to permit exiting air to communicate with the radiator.

8. The motorcycle of claim 7, further comprising a pair of top air ducts for guiding cooling air to the radiator, said top air ducts extending over the engine and

having inlets disposed on opposing sides of the steering head and outlets positioned to permit exiting air to communicate with the radiator, said inlets of the top air ducts being disposed above the inlet of the middle air duct.

9. The motorcycle of claim 8, wherein the outlet of the middle air duct is laterally and longitudinally aligned with the outlets of the top air ducts.

10. The motorcycle of claim 9, wherein the outlet of the middle air duct is disposed between the outlets of the top air ducts.

11. The motorcycle of claim 8, further comprising at least one rear air duct for guiding cooling air to the radiator, said at least one rear air duct having an inlet located rearwardly of the engine and below the seat and an outlet positioned to permit exiting air to communicate with the radiator.

12. The motorcycle of claim 7, wherein the inlet of the middle duct is disposed between the down pipes.

13. A motorcycle comprising:

(a.) front and rear wheels;

(b.) a frame supported on and connected to the front and rear wheels;

(c.) an engine mounted to the frame and disposed between the front and rear wheels;

(d.) a seat mounted to the frame;

(e.) a radiator mounted to the frame and positioned between the engine and the rear wheel; and

(f.) at least one rear air duct for guiding cooling air to the radiator, said at least one rear air duct having an inlet located rearwardly of the engine and below the seat and an outlet positioned to permit exiting air to communicate with the radiator.

14. The motorcycle of claim 13, wherein the frame comprises:
 - a steering head;
 - a pair of spaced-apart down pipes secured to the steering head and extending downwardly and rearwardly therefrom; and
 - a pair of bottom pipes joined at bends to bottom portions of the down pipes and extending rearwardly therefrom.
15. The motorcycle of claim 14, wherein the frame further comprises:
 - a pair of rear stays secured to rear portions of the bottom pipes and extending upwardly therefrom; and
 - a top frame portion secured between the steering head and the rear stays, said top frame portion including a pair of seat rails.
16. The motorcycle of claim 15, wherein the at least one rear air duct comprises a pair of rear air ducts, each having an inlet located rearwardly of the engine and below the seat and an outlet positioned to permit exiting air to communicate with the radiator.
17. The motorcycle of claim 16, wherein the inlets of the rear air ducts are respectively disposed in corner regions formed between the seat rails and the rear stays, respectively.
18. The motorcycle of claim 14, wherein the at least one rear air duct comprises a pair of rear air ducts, each having an inlet located rearwardly of the engine and below the seat and an outlet positioned to permit exiting air to communicate with the radiator.
19. The motorcycle of claim 18, further comprising a bottom air duct for guiding cooling air to the radiator, said bottom air duct extending under the engine and having an inlet located forwardly of at least a majority of the engine and an outlet positioned to permit exiting air to communicate with the radiator.

20. The motorcycle of claim 19, further comprising a middle air duct for guiding cooling air to the radiator, said middle air duct extending over the engine and having an inlet located below the steering head and in lateral alignment with a space between the down pipes.

21. The motorcycle of claim 20, further comprising a pair of top air ducts for guiding cooling air to the radiator, said top air ducts extending over the engine and having inlets disposed on opposing sides of the steering head and an outlet positioned to permit exiting air to communicate with the radiator, said inlets of the top air ducts being disposed above the inlet of the middle air duct.

22. A motorcycle comprising:

(a.) front and rear wheels;

(b.) a frame supported on and connected to the front and rear wheels, said frame comprising:

a steering head;

a pair of spaced-apart down pipes secured to the steering head and extending downwardly and rearwardly therefrom; and

a pair of bottom pipes joined at bends to bottom portions of the down pipes and extending rearwardly therefrom;

(c.) an engine mounted to the frame and disposed between the front and rear wheels;

(d.) a seat mounted to the frame;

(e.) a radiator mounted to the frame and positioned between the engine and the rear wheel; and

(f.) an air management system comprising a plurality of air ducts for guiding cooling air to the radiator, a first one of the air ducts extending over the engine and a second one of the air ducts extending under the engine.

23. The motorcycle of claim 22, wherein a third one of the ducts is disposed

rearward of the engine.

24. The motorcycle of claim 23, wherein a fourth one of the ducts is disposed rearward of the engine.

25. The motorcycle of claim 24, wherein a fifth one of the ducts and a sixth one of the ducts extend over the engine.

26. The motorcycle of claim 25, wherein the third and fourth ones of the ducts are disposed laterally outward from the engine.

27. The motorcycle of claim 22, wherein the frame further comprises a pair of rear stays secured to rear portions of the bottom pipes and extending upwardly therefrom; and

a top frame portion secured between the steering head and the rear stays.

28. The motorcycle of claim 27, wherein the frame further comprises a rear swing frame pivotally connected to the rear stays and to which the rear wheel is mounted.

29. The motorcycle of claim 28, wherein the radiator is secured to the rear swing frame.

30. A motorcycle comprising:

(a.) front and rear wheels;

(b.) an engine disposed between the front and rear wheels;

(c.) a radiator disposed between the engine and the rear wheel;

(d.) a frame supporting the engine and the radiator on the front and rear wheels, said frame comprising:

a steering head;

a pair of rear stays; and

a top frame structure secured between the steering head and the rear stays, said top frame structure comprising a pair of seat rails secured to a duct structure, said duct structure comprising at least one air duct for guiding cooling air to the radiator, said at least one air duct extending over the engine and having an inlet located at about the steering head and an outlet positioned to permit exiting air to communicate with the radiator;

(e.) a fuel tank disposed over and supported on the top frame structure; and

(f.) a seat disposed over and supported on the seat rails.

31. The motorcycle of claim 30, wherein the at least one duct comprises a pair of top air ducts for guiding cooling air to the radiator, said top air ducts extending over the engine and having inlets disposed on opposing sides of the steering head and outlets positioned to permit exiting air to communicate with the radiator.

32. The motorcycle of claim 31, wherein the top air ducts are secured to opposing sides of the steering head.

33. The motorcycle of claim 32, wherein the frame further comprises a pair of spaced-apart down pipes secured to the steering head and extending downwardly and rearwardly therefrom, and wherein the at least one duct further comprises a middle air duct for guiding cooling air to the radiator, said middle air duct extending over the engine and having an inlet located below the steering head and laterally aligned with a space between the down pipes and an outlet positioned to permit exiting air to communicate with the radiator, said inlets of the top air ducts being disposed above the inlet of the middle air duct.

34. The motorcycle of claim 33, wherein the outlet of the middle air duct is laterally and longitudinally aligned with the outlets of the top air ducts.

35. The motorcycle of claim 34, wherein the outlet of the middle air duct is disposed between the outlets of the top air ducts.